

WHAT IS CLAIMED IS:

1. A method for controlling the charging of a battery, comprising:
monitoring a battery voltage;
coupling a supply voltage of a charging control logic to a ground,
generating an active low first control signal, inverting said active low first control signal, and charging said battery at a first rate in response to receiving said inverted first control signal, when said battery voltage is below a threshold voltage; and
coupling said supply voltage of said charging control logic to said battery voltage, generating an active high second control signal, and charging said battery at a second rate in response to receiving said active high second control signal, when said battery voltage exceeds said threshold voltage;
wherein said first rate is slower than said second rate.
2. The method according to claim 1, wherein said charging said battery is performed with a charger, the method further comprising monitoring a status of said charger.
3. The method according to claim 1, further comprising supplying said battery voltage to a charger line when said battery voltage exceeds a charger voltage.
4. The method according to claim 3, further comprising suppressing a

leakage current.

5. The method according to claim 1, wherein said coupling said supply voltage of said charging control logic to said battery voltage further comprises regulating said battery voltage.

6. A battery charging control apparatus, comprising: *~*
a charger having a first charging mode and a second charging mode,
wherein said first charging mode is slower than said second charging mode;
an external charging circuit coupled between said charger and a
battery;
a charging control circuit coupled between said charger and said
battery; and
an inverter coupled between said charging control circuit and said
external charging circuit;
wherein said charging control circuit includes:
a battery status monitor coupled to said battery, said battery
status monitor generating a battery status signal according to a battery voltage,
a charging control logic coupled to receive said battery status
signal, said charging control logic supplying a first control signal and a second
control signal to said external charging circuit, and
a power multiplexer coupled to receive said battery status

signal, said power multiplexer having a first input coupled to said battery and a second input coupled to a ground, wherein said power multiplexer supplies a battery voltage or said ground to said charging control logic according to said battery status signal;

wherein said first control signal is active low when said battery voltage is below a threshold voltage, and wherein said inverter inverts said first control signal to activate said first charging mode when said battery voltage is below said threshold voltage.

7. The battery charging control apparatus according to claim 6, wherein said charging control circuit includes one or more low-voltage CMOS devices.

8. The battery charging control apparatus according to claim 6, further comprising a diode coupled between said charger and said battery, wherein said diode supports a reverse power mode.

9. The battery charging control apparatus according to claim 8, wherein said diode is a Schottky diode.

10. The battery charging control apparatus according to claim 8, wherein said external charging circuit suppresses a leakage current during said reverse power mode.

11. The battery charging control apparatus according to claim 10, wherein said external charging circuit includes a PMOS device that suppresses said leakage current.
12. The battery charging control apparatus according to claim 6, wherein said charging control circuit further comprises a voltage regulator coupled between said battery and said first input of said power multiplexer.
13. The battery charging control apparatus according to claim 6, wherein said inverter includes a resistor coupled to a gate of a MOS device.
14. The battery charging control apparatus of claim 6, further comprising a charger status monitor coupled to said charger, said charger status monitor supplying a charger status signal to said charging control logic.
15. The battery charging control apparatus according to claim 14, further comprising a voltage divider coupled between said charger and said charger status monitor.
16. A battery charging control system, comprising
a first charging means for charging a battery;
a second charging means for charging said battery, wherein said first charging means charges said battery slower than said second charging means;

external switching means for switching between said first charging means and said second charging means;

battery monitoring means for monitoring a voltage of said battery, said battery monitoring means generating a battery status signal;

controlling means for controlling said external switching means, said controlling means generating a first control signal and a second control signal, wherein said first control signal is active low when said battery voltage is below a threshold voltage;

means for inverting said first control signal; and

voltage selection means for supplying a voltage to said controlling means according to said battery status signal, wherein said voltage selection means prevents said charging means from directly supplying a voltage to said controlling means.

17. The battery charging control system according to claim 16, further comprising reverse power mode means, wherein said battery supplies said battery voltage to a charger line when said battery voltage exceeds a charger voltage.

18. The battery charging control system according to claim 17, wherein said first charging means further comprises means for suppressing a leakage current from flowing into said controlling means.

19. The battery charging control system according to claim 16, further comprising means for regulating said battery voltage.

20. The battery charging control system according to claim 16, further comprising means for monitoring a status of said charging means.